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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/663,462

09/16/2003

Koichi Tamura

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23389

7590

10/27/2006

SCULLY SCOTT MURPHY & PRESSER, PC  
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EXAMINER

KIM, KEVIN

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/663,462

Applicant(s)

TAMURA, KOICHI

Examiner

Kevin Y. Kim

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-14 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-14, 25-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/510,861.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. Claim 25 is objected to because of the following informalities: the claims is written directed to an apparatus, i.e., “a modulation circuit.” However, the body of the claims includes only steps. Therefore, the claim will be treated as a method claim. In addition, the claim recites “fifth step” and “sixth step” without the previous steps. Thus, they will be understood as the first and second steps respectively. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 11-13,25-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al (US 6,215,813).

Claims 11 and 25.

Jones et al discloses a modulation circuit (see Fig. 7) for modulating a digital signal, comprising

a means (908) for inserting a preliminarily known signal (pilot signal) to the digital signal (910) and

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a means (930, 932) for modulating the carriers with the digital signal after the insertion of the known know signal.

Claims 12 and 26.

Jones et al discloses a modulation circuit is an orthogonal modulator (modulator 930 modulating the I-component is orthogonal to modulator 932 modulating the Q-component).

Claims 13 and 27.

The adder (908) inserts the pilot signal to the digital signal in time multiplexing because pilot signals are added between data in time domain.

4. Claims 11-14, 25-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Sullivan (US 6,094,162).

Claims 11 and 25.

Sullivan discloses a modulation circuit and method (see Fig.4) for modulating a digital signal, comprising

a means for inserting a preliminarily known signal (sync code 41) to the digital signal (data 42), and

a means (48a, 48b) for modulating the carriers with the digital signal after the insertion of the known know signal.

The means for inserting is now shown but it is quite established that a frame is formed such that sync codes are inserted between data. Such a frame is provided to the modulator (40) where the sync code and data are provided to separate I and Q modulators.

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Claims 12 and 26.

Sullivan discloses a modulation circuit is an orthogonal modulator (modulator 48a is orthogonal to modulator 48b).

Claims 13 and 27.

Because sync codes are inserted between data, the frame is essentially formed in time multiplexing.

Claims 14 and 28.

Sullivan shows that information is provided to one of two digital signals ( $\cos\omega t$ , and  $\sin\omega t$ ) with phases mutually shifted for 90 degree and the sync is provided to the other of the two signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 26, 2006

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KEVIN KIM  
PRIMARY PATENT EXAMINER

*Kevin Kim*  
*10/26/06*